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ABSTRACT

This manual is designed to serve as a comprehensive guide for utilizing 20/20 analysis, an instructional planning approach that aims to overcome the disjointedness of current, narrowly formed categorical programs for educating marginal students. The authors explain that 20/20 analysis is a key element in developing an integrated service delivery system in which students showing the most (the top 20 percent) and the least (the bottom 20 percent) progress on significant outcome variables receive intensive study and instruction. The concept does not involve a fixed program but rather an "opening up" of fragmented categorical systems (such as bilingual education and special education). It encourages a broad, systematic, outcome-oriented approach to school improvement. Within this manual, practitioners are provided with the 20/20 rationale, key features and concerns, step-by-step procedures, and follow-through planning at two sample schools, for use in implementing the 20/20 analysis. This true-life example of the 20/20 analysis, using data from "Elementary School A" is provided parallel to each step of the procedure. The manual then offers an illustration of the follow-through steps, which can be taken to improve instruction based on the initial data analysis. Finally, data are provided for several additional schools that have engaged in 20/20 analysis, showing how cross-school comparisons may be useful. Contains 18 references. (Author/JB)

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and
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A MANUAL FOR 20/20 ANALYSIS: A Tool for Instructional Planning

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Abstract

This manual for 20/20 analysis is designed to serve as a comprehensive guide for utilizing 20/20 analysis, an instructional planning approach that aims to overcome the disjointedness of current, narrowly formed categorical programs for educating marginal students. The authors explain that 20/20 analysis is a key element in developing an integrated service delivery system in which students showing the most (the top-20 percent) and the least (the low-20 percent) progress on significant outcome variables receive intensive study and instruction. The 20/20 concept does not involve a fixed program but rather an "opening up" of fragmented categorical systems (bilingual education, special education, etc.). It encourages a broad, systematic, outcome-oriented approach to school improvement. Within this manual, practitioners are provided with such detailed information as the 20/20 rationale, key features and concerns, step-by-step procedures, and follow-through planning at two sample schools, for use in implementing the 20/20 analysis.

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IN BRIEF -- AN INTRODUCTION TO 20/20 ANALYSIS

The 20/20 analysis is designed as a data-based approach to instructional planning. It proposes that schools make a special effort to identify and study students showing the least progress and the most progress in learning in one or more of the most important curriculum areas. It involves looking to the margins to identify students for whom the existing instructional program is working both *least* and *most* adequately (those who rank above the 80th percentile and below the 20th percentile -- hence, "20/20") so efforts for instructional improvements can follow. It is believed that as schools begin to serve their marginal pupils better, services for all students will improve.

Many schools are in a state of disrepair at their margins and need reform, as evidenced by schools that frequently "give away" low-achieving students to an uncoordinated and inefficient "second system" of education -- a collection of narrowly framed categorical programs. Even in the case of high-achieving students, too many schools have programs that are neglectful and non-adaptive for rapid learners or that involve "pull-out" procedures offering only disconnected content and untested instructional practices. At a time when many new and alternative forms of education are developing, systematic means for monitoring the progress of marginal students are becoming more important. The 20/20 analysis provides one such procedure.

The 20/20 analysis involves an initial data analysis phase, followed by adaptations in the instructional program needed for both individuals and total programs. There is no fixed program for 20/20 analysis in this second phase. It aims to open up total school programs for creative approaches to instructional improvement, to achieve coherent school-wide planning, and to enhance learning opportunities for all students, while always focusing attention on students at the margins.

The term "20/20" not only indicates the segments of the school population needing attention, but also, metaphorically, the need for the instructional programs provided to these pupils to have precise, well-focused examination -- or clear vision. The program proposed here is consistent with emerging general trends toward the elimination of narrowly framed categorical programs and their attending bureaucracies, and the preference of more locally controlled, creative approaches to public services (Osborne & Gaebler, 1992).

ORGANIZATION OF THE MANUAL

This manual is organized to present the rationale for the 20/20 analysis, a summary of its key features, and a step-by-step guide on procedures. A true-to-life example of the 20/20 analysis, using data from Elementary School A, is provided parallel to each step of the procedure. The manual then offers illustrations of follow-through steps which can be taken to improve instruction based on the initial data analysis. The example of Elementary School A again is projected through the follow-through stages. Finally, data are provided for several additional schools that have engaged in 20/20 analysis, showing how cross-school comparisons may be useful.

RATIONALE

One indicator of an effective school is its ability to meet the diverse instructional needs of all students, including those at the margins. Many schools, particularly those with high concentrations of students in at-risk circumstances, have served those at the margins of achievement distribution poorly.

A key element in the 20/20 analysis is motivating local school staff to take the initiative in the systematic study of their students and programs (rather than have outside agents do the job) without the constraints associated with categorical programs and student labeling. The procedure should be as simple and non-technical as possible so that all stakeholders in the schools, especially parents, can understand and participate in the process at all stages. As school staffs and parents grow in their ability to use 20/20 analyses, it is anticipated they will be able to give attention to increasingly sophisticated approaches to instructional improvement. Moreover, through repeated use, the 20/20 procedure provides data on trends in the outcomes of school programs and thus a "built-in" program evaluation. The 20/20 analysis provides a way of building up the research, development, and evaluation capabilities at local school sites.

Hopefully, 20/20 procedures will help educators avoid some of the disjointedness and proceduralism in present categorical programs. The term "proceduralism" refers to complex and expensive systems now used to categorize (and often to label) children and to the massive paperwork involved in making programs accountable to state and federal authorities. It is important to realize how limited some of the categories are in terms of scientific credibility and usefulness in planning school programs. The 20/20 analysis proposes to use meaningful dimensions of learning in diagnosis and planning, rather than categories and labels which have limited relevance for instructional practices. In total, the procedure is quite simple and easy to monitor, but it can lead to comprehensive changes in school operations.

Categorical programs such as those for students who are economically disadvantaged (Chapter 1), educable mentally retarded (EMR), learning disabled (LD), emotionally disturbed (ED), limited in English proficiency (LEP), or members of migrant families have been established on the basis of presumed causes of learning problems. In fact, such presumed causes often have little if any relation to instructional approaches found most useful. Many schools now operate with a great variety of highly disjointed, narrowly framed categorical "second system" programs (Wang, Reynolds, & Walberg, 1987, 1988) that present enormous problems of management, coordination, and inefficiency. The 20/20 analysis proposes that instead of organizing programs by categories based on presumed causes, schools proceed directly to measures of learning outcomes and to very intensive instruction for children whose progress in learning under ordinary arrangements is marginal.

Much of the working time of school psychologists has been consumed in simple psychometrics to qualify students for allocation to the various categorical programs. This unfortunate fact has caused morale problems among many psychologists and, perhaps more importantly, has meant that broader, more useful versions of psychology have not been delivered to the schools (Heller, Holtzman, & Messick, 1982; Hobbs, 1975; Wang, Reynolds, & Walberg, 1987, 1988; Ysseldyke, 1987).

The need to focus greater-than-usual support on students at the margins, starting with direct assessment of learning progress, has been clear in the writings of several leading researchers (Bereiter, 1985; Brophy, 1986; Heller et al., 1982). For example, Bereiter (1985) put it this way:

> For any sort of learning, from swimming to reading, some children learn with almost no help and other children need a great deal of help. Children whom we have labeled educationally disadvantaged are typically children who need more than ordinary amounts of help with academic learning. Why they need help is open to all sorts of explanations. But suppose that, instead of reopening that issue, we simply accept the fact that youngsters vary greatly in how much help they need and why. (p. 541)

In the early 1980s a special panel was created by the National Academy of Sciences (NAS) to study placement practices in special education. Referring to educable mental retardation, learning disabilities, and compensatory education programs, the NAS panel reported that, "We find no educational justification for the current categorization system that separates these three groups in the schools" (Heller et al., 1982, p. 102). Unless and until there is clear refutation of that observation, it is our view that educators should stop making classification and

allocation decisions involving those categories. The 20/20 analysis is presented as an alternative procedure.

KEY FEATURES AND CONCERNS

The first feature of the 20/20 analysis is that it seeks to call attention to the realities of individual differences (IDs) among students, especially students whose progress in school learning is marginal. Despite much talk by specialists about IDs, there has been vast failure to communicate the facts of individual differences to many educators and to the public at large. The 20/20 analysis is intended to portray individual differences on important dimensions of achievement within classes and schools and to link this to ways schools can address such differences. This approach in no way diminishes the opportunities to look at students whose learning progress falls in a middle range but draws attention to the margins as well. In references to IDs, it is not implied that the differences are static or implacable. All children can learn, and educators serve best when attending to difference variables which are manipulable and alterable -- those with proven positive effects on learning.

Secondly, the 20/20 analysis focuses on the important outcomes or goals of education. In effect, it maintains that schools exist for specific purposes -- most basically to cause pupils to learn in areas that may be regarded as "cultural imperatives," such as learning to read and to think in quantitative terms. When pupils fail to learn in important areas, there is reason for urgent concern. Equally, when pupils master basics readily, there should be concern for making appropriate adaptations in their school programs so that they are challenged to proceed to advanced topics and explorations of specialized fields of study. It is intended that the 20/20 analysis should focus on these most basic aspects of student learning.

Thirdly, the 20/20 procedure is intended to undo the common practice of labeling a child (perhaps as mentally retarded or emotionally disturbed, etc.) as a first step in diagnosis and classification. Too often this labeling is deeply resented and resisted by parents. It can be deeply stigmatic for the child, yet be mostly useless as a step in formulating plans for instructional improvement. The 20/20 analysis proposes that: (a) the beginning step in diagnosis be direct assessment of the rate of progress in learning; and (b) when learning progress is diagnosed as low, it be taken as the first indicator that the child's instructional program and/or life situation need(s) to be altered for the better.

Fourthly, the 20/20 analysis is intended to provide a reliable and accountable system for dealing with instructional and learning problems. The present categorical ("second system") approach involves numerous boundary problems. For example, the category of learning disabilities, now the largest single category in special education, is virtually undefined. More importantly, there is no evidence that distinctly different methods of instruction are required by children grouped according to most of the various categories (Brophy, 1986; Jenkins, 1987). Programs for students who are blind or deaf do have distinctive specialized instructional procedures and provide clear exceptions to what is stated more generally above.[1] However, when classification is unreliable, as is so often the case, parents have no way of clearly knowing what distinctive expectations they should have regarding school programs or their rights and their children's rights.

Educators can speak quite clearly and reliably to parents when their child falls very low in rates of achievement in basic subjects such as reading or arithmetic. Educators also might agree to "raise a red flag" (alert parents) whenever a child falls below the 20th percentile level in rate of progress. They would then begin collaborative planning with the parents and all helpful specialists to arrange for a more favorable program for the child.[2] In sum, the 20/20 analysis could be helpful in improving the reliability of procedures for identifying children with "special" learning needs and focusing accountability for program adaptations to meet individual needs.

A fifth consideration is that by attending to the distributions of *all* children in learning the most basic school subjects, the 20/20 analysis should be helpful in bringing about collaborative efforts among advocacy groups which sometimes operate in disjointed and competitive ways. For example, advocates for "gifted and talented" students sometimes narrowly argue for "flexible pacing" of instructional programs focused on giving high-achieving students the opportunity to grow at advanced levels, rather than be held in lock-step programs that may be repetitive and unchallenging (Cox, Daniel, & Boston, 1985). However, "flexible pacing" would be advantageous for all students. It would be

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[1]The authors accept the meaningfulness of categories of students and programs in cases of blindness, deafness, severe cognitive attenuation, and many speech problems. These are instances where characteristics of individuals are definitely related to differences in instructional procedures and/or curriculum. There are well-confirmed knowledge bases for educational and therapeutic practices in these fields. This does not mean that the children in the category need to be segregated; only that the distinctive forms of education are delivered, preferably in a "mainstream" arrangement.

[2]Here the authors refer to the 20th percentile at a particular school. For example, a given school may show that 20% of their students fall below what would be the 10th percentile on national norms. One could use various norm groups in working out a system; the main concern is to have a reliable means of locating students whose progress is "marginal."

helpful if advocacy for both the high-20 (gifted et al.) and the low-20 could be organized around coherent themes such as "flexible pacing" of the curriculum.

A sixth concern underlying the 20/20 analysis is that the present narrow categorical approaches to individual differences have not worked well in forming a cumulative knowledge base (Reynolds & Lakin, 1987). There has been much uncertainty about the boundaries of such categories as LD, EMR, Chapter 1, LEP, or migrant. Boundaries of those categories have been eroded, moved, and shaded almost constantly and everywhere. In some states, "caps" have been put on the numbers of children in categories, especially learning disabilities, for whom special funding subsidies will be allowed. Most of the research in these several domains has accepted the labels used in school programs and reported results of research in such categorical terms, but the non-reliability of the classifications has precluded scientific convergence and synthesis of knowledge (Reynolds & Lakin, 1987). By helping to define how groups are formed for research purposes, the 20/20 analysis should offer some improvements in the formation of scientific knowledge in the field.

The philosophy of the 20/20 analysis does not suggest that various approaches to identifying subgroups should be abandoned for research purposes. On the contrary, it encourages very open approaches to research on matters of classification of students. However, the 20/20 analysis can provide a simple structure within which more detailed analysis might proceed. For example, those who wish to conduct research on LD children, or even on subgroups of LD children, however defined, might at least indicate how those they study fall within distributions defined by 20/20 procedures. In sum, the 20/20 analysis will be helpful in improving the scientific basis for a cumulative knowledge base relating to "special needs" pupils and the programs developed for them.

A seventh feature of 20/20 analysis is that it is dimensional rather than typological and the key dimensions are curriculum-based. Much of the diagnostic process in present categorical programs is based on dispositional traits of students (such as how much one can "expect" a given child to learn) rather than directly on what a student has in fact learned. In contrast, the 20/20 procedure involves direct measurement of what a student has learned in important curriculum areas, but not what is presumed to be dispositional. Moreover, in 20/20 analysis differences are seen as continuous and not in terms of discrete categories or "types." The 20/20 approach does not preclude dispositional analysis or any other diagnostic procedure when it is well-confirmed and used to better understand and serve the individual student; but it starts with basic and direct assessment of progress in school learning.

A question can be raised, of course, about why the 20th and 80th percentiles have been chosen. Admittedly, these cut-off points were selected somewhat arbitrarily. It would not matter a great deal if one chose to use the 15th or 25th percentile, for example. There is some advantage, however, when many schools use the same cut-off points, because comparisons then can be made across schools whenever useful. In part, the 20th percentile was chosen because in the first community where 20/20 analysis was performed, it was discovered that all special education students in three elementary schools fell below the 20th percentile on rate of progress in reading and/or arithmetic (Peterson, Heistad, Peterson, & Reynolds, 1985). Also, the 20th percentile tends to be used as the cut-off point in the Reading Recovery Program as initiated in New Zealand and now spreading quite rapidly in the United States (Clay, 1985; Pinnell, Lyons, Young, & DeFord, 1987). It is also the case that much public policy work, especially in economics, tends to be structured according to so-called quintiles. But, again, no extraordinary reasons for the 20th and 80th percentiles can be proffered, except that they yield segments of continuous dimensions of achievement and are not thought of as "types" or as "taxonic."

STEP-BY-STEP PROCEDURES

Step 1 -- Select Dimension of Learning

A first step in 20/20 analysis is selecting the dimension of school learning that will be used in the analysis. Very often this will involve aspects of basic literacy, such as reading ability. Both reading and arithmetic might often be used. In the case example presented in this manual, reading achievement was the variable used. To begin the case example, a brief description of School A is provided just below.

Step 1: School A -- A Basic Description

Enrollment: 1085 pupils in grades K-6

Enrollment grades used for 20/20 analysis: grades 2 through 6 (i.e., pupils were in grades 1 through 5 in the previous Spring when the tests were given).

Ethnicity: Latino -- 96.5%; Asian-American -- 1.8%; African-American-1.6%; Anglo -- .1%

Location: Inner city, one of the nation's largest school districts. In an impoverished section of the city, including many families who are non-English speaking and who reside in "housing projects" and trailers for the "homeless."

Special programs provided: Special Education (self-contained classrooms for students with learning handicaps or aphasia; and a resource specialist program); Chapter 1, Bilingual Program and English Language Development Program (ELDP) for LEP designated students; Migrant Education, Emergency Immigrant Education Assistance Program (EIEAP), Gifted Program.

Standardized tests administered: Comprehensive Test of Basic Skills (CTBS) in May every year to grades 1-6. Spanish version given to students designated as LEP. Other achievement tests frequently used with Special Education students: Brigance, Woodcock-Johnson, BASIS, WRAT.

Achievement area chosen for analysis: Reading (when several reading scores are available, the most general score, for example, a summary score for word attack, vocabulary, reading comprehension, and reading rate will be used).

Step 2 -- Obtain Measures of Progress

Obtain estimates of progress on the selected dimension of learning of all students. It is essential that data be obtained for absolutely every student and for a comparable period of time. In a first analysis at a school it will often be useful to start with test scores and other data already available and in use. This may prompt discussions about test adequacy and permit a carefully planned improvement in data to be used in subsequent analyses. It may be necessary to use alternative test results or other kinds of estimates of progress in order to include all enrolled students. The best available advice should be used in choosing means to make data comparable across all sources. It will be important to be able to rank pupils among their classmates and to convert measures to percentiles on a national level or some other general level. In the School A example, use is made of national norms. That will be a common procedure, but one could easily use or add comparisons with norms for a city, region or state, etc.

Step 2: School A -- The Tests Used

In School A the Comprehensive Test of Basic Skills (CTBS) is given in May of each year in grades 1 through 6. For the present analysis, test scores obtained in May 1990 were used for studying pupils in the 1990-1991 school year. Accordingly, our example includes only pupils in grades 2 through 6. Pupils in grade 2 took the CTBS at the end of the previous school year when they were in grade 1. Spanish versions of the CTBS were used for students designated as LEP (by performance on District selected measures); others were administered English versions. In all cases, national norms were available. It was assumed that one could look across the English and Spanish test results in describing the pupils in School A (in schools with well-established bilingual programs, it is possible to perform 20/20 analyses separately on English and second-language data sets). In the case of 29 students enrolled in special education programs, individually administered achievement tests were used including Brigance, Woodcock-Johnson, BASIS, and WRAT. Again, national norms were available and percentiles were assumed to be comparable across the several tests. Test results obtained at the time nearest to the date CTBS was administered were used in assigning percentile ranks to special education students. In all instances pupils not having test scores available were described by teachers as "non-readers" or at "pre-primer" levels. This meant, in each case, that the pupil could be considered to fall in the lowest scoring group at the school (i.e., below the 20th percentile).

Step 3 -- Compute 20th and 80th Percentiles

Compute the 20th and 80th percentiles on local norms. In the case of School A this was done separately by grade and for the school as a whole. Scores were listed from the highest downward until somewhat more than 20% of the pupils enrolled at each grade level were listed. This was done using percentile scores on national norms. Similarly, scores were listed from the lowest upward for each grade until more than 20% of the pupils were listed. From there one could easily count down a number representing 20% of the pupils at each grade to find the 80th percentile; similarly, one could count upward to find the 20th percentile. In addition to analyzing scores at each grade level, it is possible to make an analysis for the school as a whole as done in the case of School A. The procedure is the same as for grades; simply count down from the top score until reaching a point below 80% of the scores. Do the same from the bottom up to specify the 20th percentile. When one finds the 20th and 80th percentiles for the school as a whole, it may be observed that there is unevenness across grade levels in the number of students in the low-20 and high-20 group. That was true for School A.

Many school systems now provide computerized "print outs" of pupil scores on school-wide or other major tests which make it easy to compute 80th and 20th percentiles. Sometimes with only minor adaptations in computerized systems 20/20 analysis can be accomplished for many schools, possibly even for a total system. However, it is necessary to check carefully to ensure that *all* pupils have been included in the testing and the reports. Almost always some pupils will have been omitted and it will be necessary to add data representing the individuals who were omitted in the first data set.

A NOTE ON TEST ADEQUACY: Among many educators these days there is dissatisfaction with existing norm-referenced tests. There is much talk about curriculum-based assessment, "authentic" assessment, and other new and emerging assessment procedures. In 20/20 analysis, one simply starts with whatever assessment procedures are in use in the schools being studied. It is assumed that there will always be efforts to improve procedures for testing and decision making in the schools. This plan proposes that educators doing 20/20 analyses should join in efforts to improve assessment procedures, and be ready to use new approaches as their validity is established. For example, in one school where 20/20 analysis is used, there is interest in using Curriculum Based Measurement (CBM) (Deno, 1985) as an alternative to norm-referenced group tests. In this case, CBM procedures have been applied to all pupils in the school and a comparison will be made of 20/20 groups formed according to the CBM and the traditional tests. Perhaps the CBM approach will be preferred after careful review of results in the present trial period. In summary, one starts with

the assessments in hand, which may involve multiple measures in order to include everyone, but then helps to find better approaches as rapidly as possible.

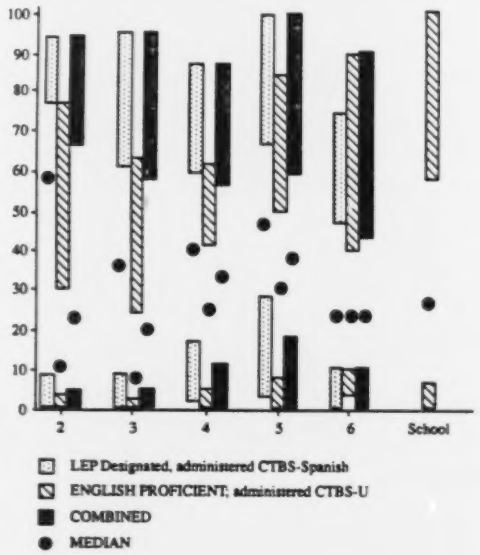
Step 3: School A -- Data Analysis

In grade 2 there were 158 pupils; therefore, to obtain the 80th percentile it was necessary to count 32 cases down from the top score. To obtain the 20th percentile it was necessary to count up 32 cases from the lowest score. Comparable steps were followed for each grade level. Results are shown in Figure 1. The bars in the lower portion of Figure 1 show the range of scores from lowest up to the 20th percentile. Similarly, bars in the upper part of the figure show the range from the highest score down to the 80th percentile. The solid circles show medians, for each grade and for the school as a whole.

Figure 1

Highest and Lowest Scores and 80th, 50th, and 20th Percentiles for Project School.

Data Reported for LEP Students who took CTBS-Spanish, English Proficient Students who took CTBS-U and Total School Population



It is noteworthy that 20% of pupils in grade 2 at School A scored below the 5th percentile in reading on national norms; the 80th percentile was at the 67th percentile nationally. Scores at the 20th percentile appeared to be a bit higher for upper grades. For the school as a whole

-continued-

(grades 2 through 6), the 20th percentile was at the 6th percentile nationally and the median was at the 26th percentile (see data for the school as a whole at the far right side of Figure 1). Clearly, the general rate of learning to read by pupils at School A is very low. The instructional program apparently is not working well for many pupils. Incidentally, the staff at the school feels that the test results -- especially at primary grade levels -- reflected general language development as well as specific reading abilities.

To see how results might differ for students who took the Spanish and English versions of the test, see Figure 1. It may be observed that scores for all groups (LEP, English, and combined) are very low, but that pupils taking the English version scored consistently lower than LEP students. The principal of School A suggested an explanation to the effect that "English-speaking" Latino families still living in this very poor neighborhood were likely to have many problems that were reflected in the school performance of their children. They were often families that had lived in the area for more than one generation; that is, they had not "made it out of the ghetto." Included among LEP students were many from first generation immigrant families who also had many problems to overcome, but were perhaps generally in better order than others.

Step 4 -- List the Two 20/20 Groups

List by name all pupils in the school in top-20 and low-20 groups, those scoring above the 80th percentile and those scoring below the 20th percentile for the school as a whole. In the case example of School A, the 6th and 58th percentiles, which were the values obtained for the school as a whole, were used. This is to say that 20% of pupils at School A fell below the 6th percentile on national norms and that 20% scored above the 58th percentile, again on national norms. The numbers of children in low-20 groups and high-20 groups, according to this analysis, are shown by grade, below.

Step 4: School A -- Number of Pupils Scoring above 80th and Below 20th Percentile by Grade

	Grades				
	2	3	4	5	6
No. below 20th %ile	35	28	13	12	8
No. above 80th %ile	46	20	20	29	20

It may be observed that in this analysis for the school as a whole more pupils in lower grades scored below the 20th percentile as compared with upper grades. This may indicate a need to stress program improvements at the lower grade levels.

Step 5: Summarize Special Designations

Summarize all special designations and program placements for pupils in the 20/20 groups.

Step 5: School A -- 20/20 Program Assignments and Special Designations

For School A the following programs/special designations were to be considered:

Chapter 1
Bilingual or English Language Development Program (ELDP) for LEP designated students
Special Education (LH, Aphasia, and RSP)
Gifted Program
Migrant Program
Emergency Immigrant Education Assistance Program

In Figure 2, the distribution of pupils among the programs/special designations is given with the breakdown for grade and 20/20 groups. Data for Figure 2 were based on low-20 and high-20 groups for the school as a whole. Two other categories of information are given also; the first reports the absence rate and the second reflects transfer out of the school between the time of testing, May 1990, and the date used uniformly to specify program placement, December 1, 1990. (The December 1 date for observing program placements was used because it is the date used in making reports to the State and federal government on special education placements.)

Step 6 -- Examine Programmatic Provisions

Examine critically the programmatic provisions made for students in the 20/20 groups. The following observations, many based on data provided in Figure 2, were made in the case of School A.

Step 6: School A -- Analysis of Programmatic Provision

Following are some observations and summary comments analyzing program placement data and related information at School A:

- Seventy-one percent of the students enrolled in special education programs were identified in the "low-20" group (42 of 59).

-continued-

Figure 2

Distribution of Low 20% and High 20% Students Across Categorical Groups

					LEP[a] Designated		English Proficient			Special Education					
Low 20 % Grade Level	Number of Students	Transferred Out After 5/90	Absence Rate	Chapter 1	Bilingual[b]	ELDP[c]	EO[d]	IFEP[e]	RFEP[f]	LH-SDC[g]	Aphasia[h]	RSP[i]	Gifted Program	Migrant Program	EIEAP[j]
2	35	8	.09	34	12	4	8	11		0	4	1		1	5
3	28	10	.09	28	10	2	6	10		4	2	2		3	2
4	13	3	.06	12	5	2	1	5		8	2	2		1	0
5	12	6	.07	12	4	2		6		5	3	1		1	0
6	8	2	.03	8	5	0		3		6	1	1		0	1
Total:	131	39	$\bar{x}$ =.07	129	40	35	18	38		23	12	7		6	9
(Percent)		30%		98%	31%	27%	14%	29%		18%	9%	5%		5%	7%
High 20% Grade Level															
2	46	11	.04	7	33		12	0	1					2	10
3	20	7	.04	9	19		0	1					6	2	1
4	20	7	.03	17	17		1	2					3	0	3
5	29	5	.05	19	20		0	1	4	4			5	1	4
6	20	4	.05	13	7		2	4	5	2			5	1	2
Total:	135	34	$\bar{x}$ =.04	65	96		15	8	10	6			19	6	20
(Percent)		25%		48%	71%		11%	6%	7%	5%			15%	5%	15%

[a]Limited English Proficient
[b]Bilingual Instruction
[c]English Language Development Program
[d]English Only
[e]Instructionally Full English Proficient
[f]Redesignated Full English Proficient
[g]Learning Handicapped Program - Special Day Classroom
[h]Aphasia Program - Special Day Classroom
[i]Resource Specialist Program - pupils included in grade level rosters;
only 7 out of 28 scored below 6th percentile
[j]Emergency Immigrant Education Assistance Program

- Seventeen special education students (29%) were not included in the "low-20" group, i.e., they scored above the 6th percentile on reading ability.

- Seventy-two students who scored at or below the 6th percentile in reading were not enrolled in special education or in any program that offered highly intensive reading instruction.

- The IEPs for all special education students included goals and objectives related to reading ability. No IEPs included goals and objectives related to behavior problems.

- The number of pupils at or below the 6th percentile in reading were highest in grades 2 and 3, while lower in upper grades.

- There was a high concentration of English instructed students in the "low-20" group who were not succeeding in reading and who appeared to need a strong language development program.

- There was a sizeable drop in the number of "high-20" pupils from 2nd to 3rd grade which may have been related to placement of some LEP pupils in English instructed (ELDP) classrooms after 1st grade.

- Twenty-nine of 35 special education students were designated as LEP but only four received bilingual instruction, probably due to lack of bilingual special education personnel.

- Only 53% of "low-20" students designated as LEP received bilingual instruction compared to 86% of "high-20" students.

- The absence rate was almost twice as high for "low-20" as for "high-20" pupils and especially high for 2nd and 3rd grade pupils.

- Only 15% of "high-20" pupils were officially designated as GIFTED, probably due to district eligibility criteria and general low priority/incentive for identifying GIFTED pupils. (Schools receive $70 annually for each GIFTED student.)

Step 7 – Study Individuals

Study each individual in the low-20 and high-20 groups. This should involve educators, parents, and any number of specialists who may be in a position to be helpful. On this point, psychologists are called upon not to classify and label the child, but rather to join with the teacher and the parents to develop an understanding of each pupil and to help in designing changes that

might enhance the child's life and learning. Very often the study of individuals may proceed with attention to the same variables as used in programmatic studies. For example, it will often be of interest to study how the individual child uses time, just as the use of time may be studied in a program or a class as a whole. Or, an individual may be studied to determine the level of his/her metacognitive abilities, just as one could examine a program to see how effectively it promotes, models, and uses metacognitive procedures. Everything that is known about the diagnosis of problems of learning and behavior and about steps for improvement of individual learning and behavior can be, and should be, entered here. Something like an IEP (Individualized Learning Plan) should be prepared for each child, including the specification of a time line for review and evaluation of the new program as entered upon for each child.

Step 7: School A -- Study of Individuals

The study of each individual is made without reference to categories and labels; emphasis is given to variables that are manipulable and well-confirmed by research showing relevance to learning. Parents and specialists are involved, along with teachers.

Follow-through Planning in School A

In the case of School A, 20/20 analysis served to confirm views of many of the school staff that there were numerous problems of learning, especially in language and reading. The analysis made it clear that many of the lowest performing students in reading were not receiving intensive help of any kind. The Special Education programs were richly staffed (usually a special education teacher had a full-time aide and worked with four or fewer pupils at a time), but dozens of other nonidentified pupils needed help -- especially in the earliest grades. Although the special education teachers were not bilingual, many special education pupils needing help were LEP designated. School attendance was a major problem. Although strong efforts had been made to involve parents more thoroughly in the work of the school, there still was not enough contact with parents. Their help will be needed if programs and the learning of children are to improve.

A decision was made to launch a major non-categorical effort to improve instruction in language and reading. Contacts with a local university resulted in commitments to support the effort. An application for a grant to help underwrite costs over a three-year development period was proposed and approved, although the commitment to try for program improvements was clear, with or without the grant. Emphasis in the proposed effort will involve:

- Coordination of the school staff and programs without reference to the traditional categories.

- Inservice training for all staff. The local university has supplied a consultant who is very well prepared to help improve the "whole language" approach used in reading instruction in the school.

- Clear specifications of the language and reading curriculum of the school.

- A plan to offer massive, intensive help in reading to every child who shows relatively low progress, beginning with a concentrated effort at the first grade level. Every school day will open with a two-hour block of time devoted to intensive reading and language instruction for all pupils and will utilize all specialist and staff resources in regular classrooms.

- Strengthening the involvement of parents in school programs, with special emphasis on language and reading. A parent center has been created, using one classroom space. A variety of parent activities have been launched, including an "English as a Second Language" class for adults and a weekly parenting workshop where issues of literacy development are discussed.

- Partnership with local university staff in special education, curriculum and instruction, family studies, and child development in efforts to improve the school program for all students.

- Evaluating fully and carefully the outcomes of special efforts through annual repetition of the 20/20 analysis and through other appropriate means.

- Working closely with leaders of the school system at regional, central office, and state levels to secure understanding and support in all required policy and administrative adaptations.

- Partnership with county departments of health, social welfare, and juvenile justice to make School A into a demonstration site for coordination of services over a wide spectrum for children and families associated with School A (beginning with a year of planning, then implementation in the second year of the project). After a year, the school qualified for a state "healthy start" grant and now has a beginning program for integration of school, health, and welfare services.

- Contact with federally sponsored centers for research and dissemination of knowledge and practices relating to school improvements (such as the National Center on Education in the Inner Cities at Temple University in Philadelphia and the Center on Family Studies at Boston University) to draw whatever insights and resources are available into School A operation.

Fortunately, School A is located in a state in which the State Department of Education is undertaking a number of initiatives intended to foster cross-program integration, coherent school-site planning, and school collaboration with health and social agencies. The staff of School A is taking advantage of opportunities afforded under the emerging state policies. Now in its second year of operations following the first 20/20 analysis, School A has integrated programs across categories within the school, and is on the way to integration with other public and private agencies in the community. Parents are more deeply involved with the school in serving children. It seems clear that present changes and future developments will involve "waivers" of some rules and regulations which, in the past, have been barriers to program coordination. It is hoped that the experience at School A will be helpful in suggesting directions in which new policies, funding practices, and programs should go in order to serve all children well, especially those students who so often end up in marginal positions in the school. Already School A is serving as something of a model, in that at least a dozen nearby schools are now involved in similar efforts and tasks under leadership from district officers.

Figure 3 gives examples of the kinds of efforts for program improvement that are possible after the data analysis phase of a 20/20 project. The figure is organized by levels, showing how increasingly complicated forms of analysis may be undertaken.

Another Example of Follow Through -- School B

The 20/20 analysis does not propose a fixed program as follow-up to the data analysis phase of the undertaking. Instead, it proposes to open up school situations for creative approaches to serving the learning needs of the students. But it insists on approaches that are inclusive of all students and that give special attention to those whose learning progress is "marginal."

School B is an average school in every sense. It matches national norms on test results, and is approximately average in racial proportionalities and economic levels of families. School B has performed 20/20 analyses for two years. In that period virtually all special education students have been placed full time in general education classes. All students in the low-20 status receive intensive help from either special education or Chapter 1 specialists who now work in general education classrooms in a teaming arrangement with regular teachers.

The school principal of School B, working with teachers and parents, has made a special effort to improve the arithmetic curriculum and is now leading

Figure 3
Sample of Ideas that Could be Developed and Tested in 20/20 Analysis

Levels	Variables	Hypotheses and Questions
1	Compare 20th and 80th percentiles on local norm with comparable percentiles on broader norm bases (e.g., show how a given school compares with city-wide, state or national norm).	Over several years have local norms been moving up or down as compared with other population norms? As one progresses upward from grade one to more advanced grades, do the comparisons with broader norm groups show relative improvement or progressive retardation? Is the trend over time the same for both low- and high-20 groups?
2	Show the distribution of 20/20 pupils into categorical programs.	Would most children in categorical programs have been identified simply by measuring reading ability? Are some high-20 pupils served in special programs? How many low-20 students are in LD programs, Chapter 1 programs, etc.? Are there some low-20 pupils who receive no special help?
3	Show number and percentages of students not enrolled in categorical or other special support programs.	How is a lack of specialized services to some low-achieving pupils explained? What are the characteristics of children in the low-20 who have major difficulties but who do not fit any existing "special" program?
4	Show proportionalities for various racial, ethnic, linguistic, and socio-economic groups in 20/20 segments and in categorical programs.	Are minority children in the low-20 more likely to be enrolled in some categorical programs than in others? To what extent are minority students included in categorical programs for gifted and talented learners? How are students who show low English proficiency distributed in 20/20 groups and categorical programs?
5	Specify the extent of coordination among programs for 20/20 students when they receive instruction in multiple settings.	Do teachers in categorical resource rooms meet frequently with "regular" teachers and coordinate programs for individual students? To what extent does the principal lead efforts for coordination of programs? Are curriculums in "pull-out" programs designed in collaborative ways by regular and special teachers? Considering all programs for 20/20 students, what amount of time is allocated to instruction on various basic subjects?
6	Examine the extent to which "effectiveness" principles are implemented in programs for 20/20 pupils. This can involve a variety of variables such as those listed below: • Academic Learning Time • Taking into account present achievement levels and providing flexible pacing • More direct, frequently monitored, highly-structured teaching for low-achieving students. (This list could be extended to include all variables shown to have a relationship with the learning of students.)	What is the rate of effective use of time by 20/20 pupils in each of the instructional settings provided for them? To what extent is the present achievement level of students taken into account in arranging instruction of 20/20 students? Do students in the low-20 segment receive especially intensive or high-density instruction in basic skills?
7	Effects of intervention (included here could be any type of intervention, such as attempts to implement programs based on "effectiveness" principles of other kinds, such as attempts to introduce new forms of collaboration among educators or to influence teacher attitudes about IDs, etc.)	Here one would check to see if effects of interventions were shown in 20/20 groups on such matters as achievement, rates of referral to special education, rates of school attendance, quality of instruction, etc.

work on two themes: time and resilience. The school staff is examining thoroughly all of the school's programs on their use of time in order to develop methods to save time and use it more productively. Parents are participating in reviews of how children spend time in hours beyond the school day. Research reviews on use of time, as provided by several national studies and a congressional commission on time, have been obtained and are being used to guide changes at school and home (Adelman, 1992; Copple, Kane, Levin, & Cohen, 1992). Similarly, reviews of research on resilience have been made and used to provide needed experiences for selected children. One focus is on providing contacts with "caring adults beyond the family" for pupils who appear to need such experience. A number of minority male adults have been recruited to work as mentors with selected students.

The school psychologist has been asked to become competent in measuring individuals' use of time and to bring this skill into diagnosis and planning for both individuals and programs. Equally, the psychologist is looked to for knowledge of the research literature on resilience.

School B still classifies students for special education and other categorical programs in the traditional ways, but detailed plans are in development to ask the State Board of Education for a waiver of rules and regulations on identification of students for special help. In return for the waiver, School B will offer to provide quite extraordinary data on the "outcomes" of its programs.

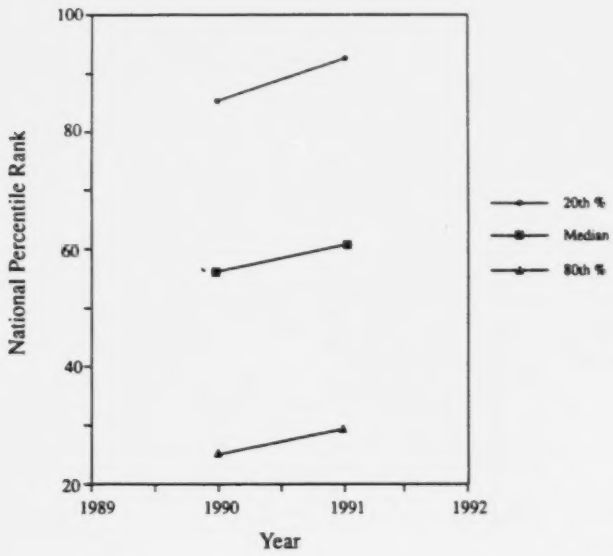
Already School B is able to use 20/20 data to show what is happening to achievements of students in basic skills. Figure 4 shows 20/20 data for School B for two years in which a special effort was made to revise and improve the curriculum in arithmetic. The data show general improvements in arithmetic (the median level of achievement showed gains), but also improvements at the margins (see the upslants on results shown at the 20th and 80th percentiles).

A faculty group at School B is studying the situation of each student in top-20 status. Already many of these students are enrolled in an advanced program on computer use and in a HOTS (higher order thinking skills) program. Use of the library by top-20 students is also scheduled to be studied. The general thought is that more attention to top-20 students is needed both at school and at home. It's on the way.

School B serves a number of severely and profoundly disabled pupils. For such students, the full version of planning with parents and IEP (Individualized Education Plan) preparation has been continued. But for other pupils, a simplified version of the IEP is being considered. It will be used with

Figure 4

School B 20/20 Analysis
CAT Math Concepts/Application Trends



all pupils in the 20/20 groups and be a part of the plan presented in seeking a waiver from state authorities.

Again, 20/20 analysis does not involve a fixed program for schools, simply a way of opening opportunities for creative approaches to school improvement, but always with clear attention to marginal or exceptional pupils -- *every one of them*!

CROSS-SCHOOL COMPARISON

When data reflecting 20/20 analyses are available from several schools within a school district, or perhaps within various regions of a city or a state, certain additional analyses will be of interest. For example, the following kinds of cross-site observations and analyses may offer valuable insights:

- The general extent to which low-scoring and high-scoring students are in "special" programs, what these special programs are, and how many are not receiving "special" help.

- The range of differences among schools in levels of achievement at 20th, 50th, and 80th percentiles.

- Trend lines in alternative schools (e.g., magnet schools, schools within schools, etc.) showing the situation for marginal students, both in terms of how enrollments are occurring and the effects of various placements.

- Trend lines over several years in 20th, 50th, and 80th percentiles for each school and in cross-school comparisons.

- The differences among schools in instructional adaptations made for low-20 and high-20 groups.

- The extent to which locally defined and developed "special" approaches are used as compared with programs initiated and funded from state or federal resources.

- Differences between schools that appear to be doing good work and less helpful work with low-20 or high-20 groups or both.

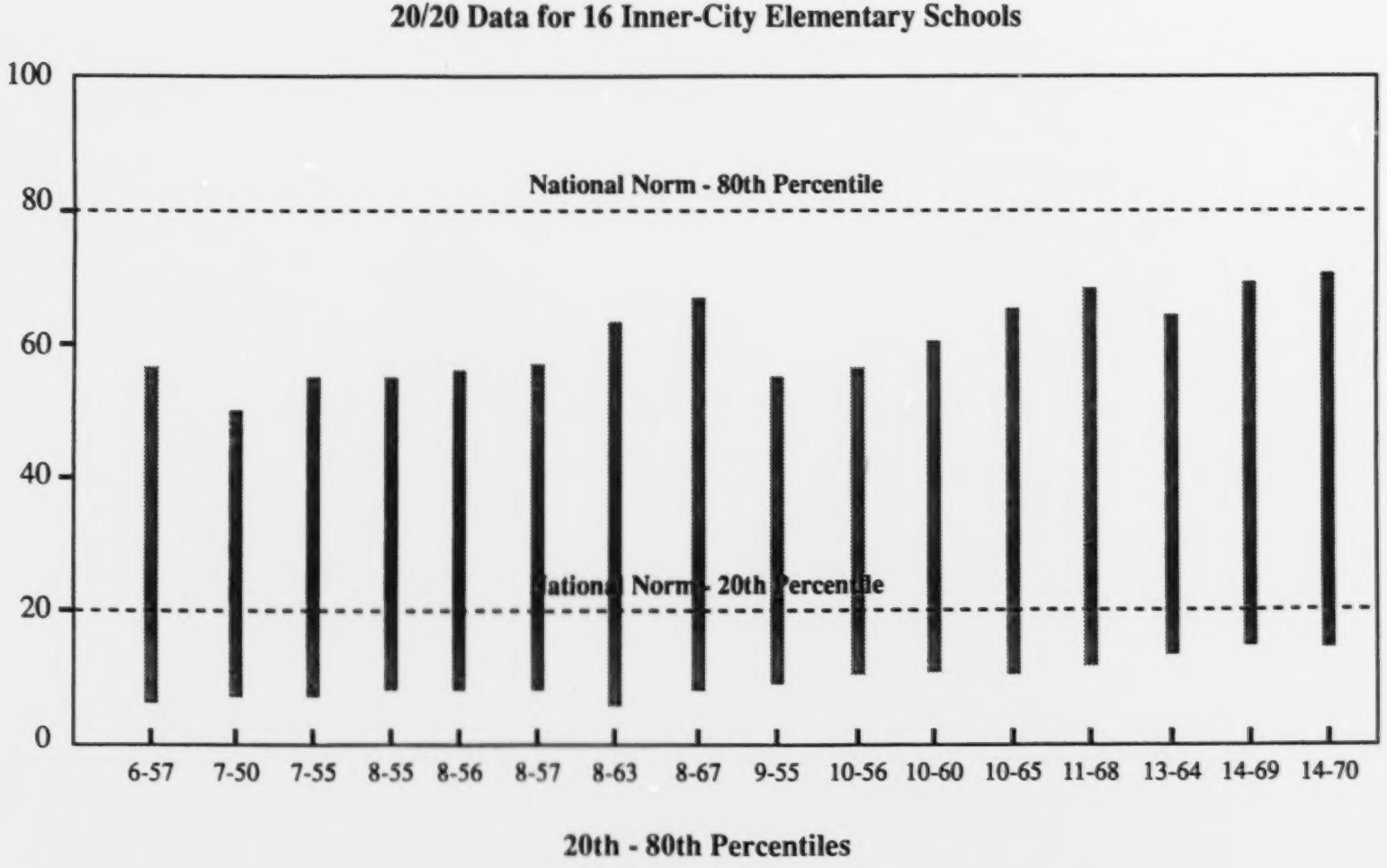
- Proportions of racial, ethnic, and linguistic minority students in both low-20 and high-20 groups.

- Comparison of gains or declines in achievement (compared with national norms) for successive grade levels.

- Collaboration or team work by specialists and regular teachers involved in multiple site instruction (e.g., how often do resource specialists and regular teachers meet to coordinate programs? And how explicitly does the school principal inspect and monitor close coordination of resource and regular class programs?)

Figure 5 provides an example of using 20/20 data from several schools, showing general results of testing in 16 elementary schools of one inner-city district. It may be observed that the 20th percentiles (national norms) in these schools ranged from 6 to 14. This signifies that in one school (it happens to be School A, as described earlier in this manual), a ratio of one pupil out of five rated below the 6th percentile on national norms in reading ability. It is a tragic situation to see pupils sitting at school desks for six hours per day, for about 180 days per year, and profiting so little from instruction. As observed earlier, most of these low performing children "fell through the cracks" of existing categorical programs and received no special help. Other schools show better results; but for the full group, the 20th percentile approximately equals the 9th national percentile and the 80th percentile equals about the 60th national percentile. This situation calls for much effort and improvement.

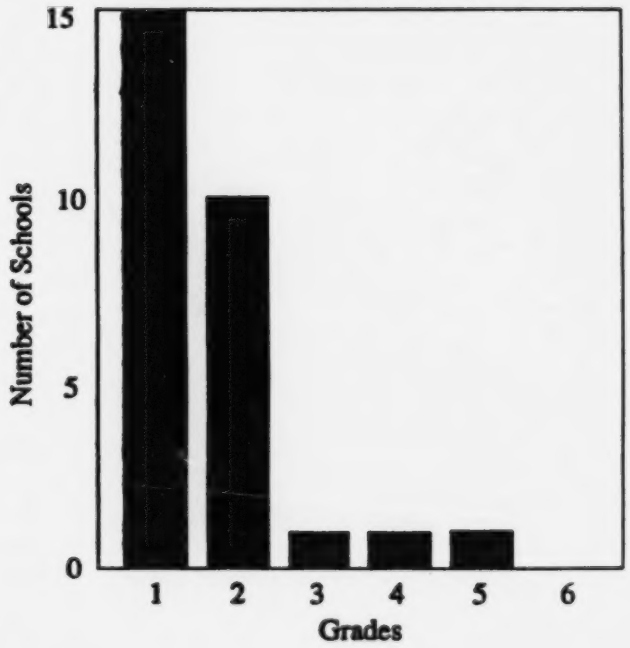
Figure 5


20/20 Data for 16 Inner-City Elementary Schools
100
80
60
40
20
0
National Norm - 80th Percentile
National Norm - 20th Percentile
6-57
7-50
7-55
8-55
8-56
8-57
8-63
8-67
9-55
10-56
10-60
10-65
11-68
13-64
14-69
14-70
20th - 80th Percentiles

The 16 schools happened to be located in one section of a large city where a large proportion of the students were Latino/Latina and limited English proficient. Further analyses showed that a very high proportion of the students in low-20 groups of all schools came from grades 1 and 2. In 15 of the 16 schools, the first graders were most often the highest or tied for the highest number of low-20 pupils, as shown in Figure 6. In a few instances (N = 10) grade 2 was highest (or tied for highest) and in a very few instances (one each) grades 3, 4, and 5 produced a disproportionate number of low-20 students.

Figure 6

Grade levels in 16 schools showing disproportionately high rates of low-20 pupils in reading ability

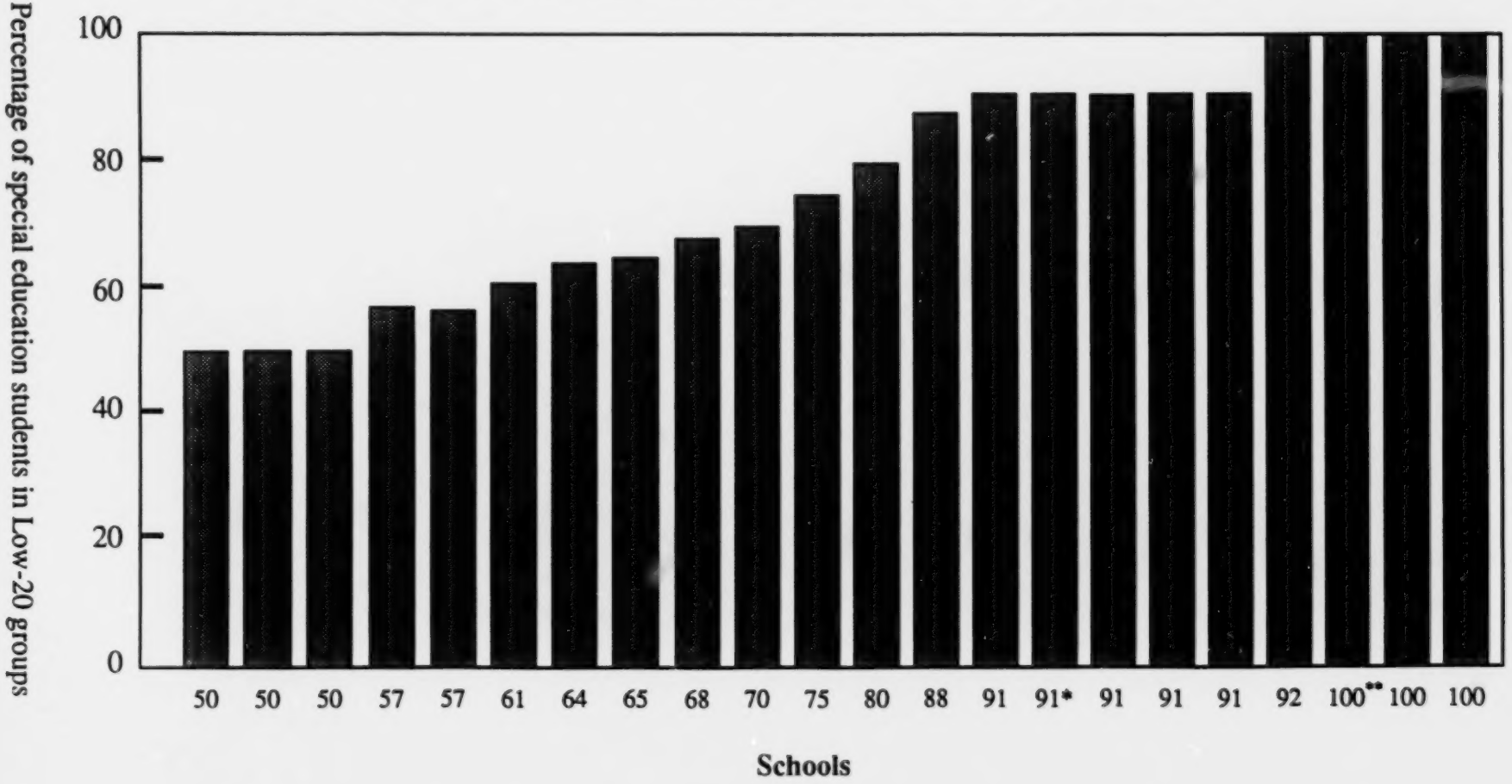


LOW ENROLLMENTS IN SPECIAL EDUCATION

At the time of this writing, rather complete data were available on 22 schools, showing the percentages of students in low-20 groups who were enrolled in special education programs. Figure 7 summarizes the findings. In three schools, exactly 50% of the special education students were identified in low-20 groups; in three other schools, all (or 100%) of the special education students were so identified. The median value of the 22 schools was between 75 and 80. This suggests a tentative estimate that about three-fourths of the students enrolled

Figure 7

Percentage of students enrolled in special education who appear in Low-20 groups: data for 22 schools



* 4 elementary schools showed an over-all 91% rate in a study by Stone, Curdick, & Swanson (1988)
** 3 elementary schools showed a 100% rate in a study by Peterson, Heistad, Peterson, & Reynolds (1985).

in special education can be identified simply by examining reading test score data and using the 20th percentile as a cut-off point.

One might expect that some special education students such as those showing speech, vision, hearing, and physical disabilities and others with emotional problems might actually read at a level above the 20th percentile and not be identified in a low-20 group. On this basis, the 20/20 analysis does not propose that 20/20 groups become the sole basis for identifying students who need special education. However, low-20 status can be one important and efficient means of identifying most special education students, in particular, those now often described as "mildly disabled or handicapped."

A TENTATIVE POLICY PROPOSAL

Based on experience with 20/20 analysis, a tentative proposal has arisen that schools declare as policy a guarantee to alert parents and enter into cooperative planning with them in all cases where a child falls into low-20 or high-20 groups on rate of learning in a basic skill, such as reading. The data now available suggests that such a procedure would immediately capture about three-fourths of the students now served in special education programs. The savings in professional time and dollars through use of this simple procedure for identifying students needing adapted programs, as compared with traditional referral-testing-classification-labeling-placement procedures, should be enormous and help to bring school psychologists and other school workers into broader and more creative kinds of work.

The 20/20 analysis does not propose that this simple procedure be the only means of identifying students for special help. Schools should permit parents and teachers to request special studies of non-20/20 pupils at any time. As noted earlier, it should be expected that some students who score above the 20th percentile and below the 80th percentile will be exceptional in the sense that they definitely require special education and related services.

There may be concern regarding the fact that 20/20 procedures, while being simple and relatively inexpensive for identification purposes, do identify 40% of the total school population. This figure approaches four times the number now enrolled in special education programs. However, this percentage does not equal more than the number of students now identified for categorical services in most schools (this refers to Chapter 1 and migrant education programs, among many others in typical schools). If waivers can be achieved from managers of these several programs so that coordinated services are

provided, the 40% figure (only 20% in the low group) will often prove not to be an expansion over present operations in categorical programs.

Relatively little has been said in this manual about top-20 students. That is because so little is offered now to students who have shown the best records in learning, except in athletics and music. The number of states that offer well-funded supports for programs serving "top" students is very limited. The 20/20 analysis should become one basis for strong efforts to advance programs for these "top" learners. Experiences with 20/20 analysis illustrate that most teachers and other school staff are anxious to engage the "top-20" challenge and will do so with much energy and devotion. Also, it often is possible to address instructional issues for both low-20 and high-20 pupils using the same constructs. For example, as in the case of School B described earlier, an analysis of how pupils use time can be important in both groups. Similarly, the practice of flexible pacing of the curriculum is important to all pupils.

SUMMARY AND SIGNIFICANCE

The 20/20 analysis is proposed as an easily understandable way for individual schools to study marginal pupils and the programs provided for them. A system requiring local initiatives in examining important educational outcome data for students at the margins is a good way to launch efforts for institutional improvement.

The 20/20 analysis is proposed also as one promising approach to overcoming the excessive disjointedness of current narrowly formed categorical approaches to educating marginal students. By drawing together procedures across categories for serving both low-20 and high-20 pupils, it is intended to encourage broadly systematic approaches to school improvement. As 20/20 analyses proceed in many schools, it is expected that policy and administrative problems will emerge and be clarified in ways which will serve important needs in future policy development. Furthermore, it is anticipated that narrowly formed categorical programs and related funding systems will need to be revised.

Those persons who try 20/20 analysis are urged to write to, and share data with, the National Center on Education in the Inner Cities (CEIC) at Temple University, 9th Floor, Ritter Hall Annex, Philadelphia PA 19122. The CEIC staff will gladly share this data with all who contact its offices.

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TEMPLE UNIVERSITY CENTER FOR RESEARCH IN HUMAN DEVELOPMENT AND EDUCATION

The Temple University Center for Research in Human Development and Education (CRHDE) is an interdisciplinary center for the study of emerging problems and challenges facing children, youth, and families. Its overall goal is to investigate the basic forces that affect human development as well as educational processes and outcomes. An important focus of the Center's work is the identification and shaping of effective responses to these forces through far-reaching changes in institutional policies and practices.

The problems and challenges facing children, youth, and families stem from a variety of cultural, economic, political, and health pressures. Their solutions are, by nature, complex. They require long-term programs of study that apply knowledge and expertise from many disciplines and professions. To this end, the Center draws together the many resources of Temple University and a wide range of national, state, and regional programs. The result is interdisciplinary and interdepartmental collaborations that involve investigations of social, economic, educational, and developmental factors and demonstration of state-of-the-art models for training and for delivery of relevant services. Research and development projects in these areas reflect a commitment to enhance the knowledge base for improving the quality of life for children and families, particularly in urban environments.

The work of CRHDE is divided into four program units: Improving Instruction and Learning in Schools, which provides technical assistance and training for innovative school programs; Social Service Delivery Systems, which develops models for effective social service delivery; Studies of Child Development and Early Intervention, which conducts pre-school diagnosis and produces innovative program development; and the National Center on Education in the Inner Cities (CEIC), funded by the U.S. Department of Education's Office of Educational Research and Improvement, which has undertaken a program of research and development as well as dissemination that takes bold steps to mobilize and strengthen education and related resources to foster resilience and learning success of children, youth, and their families in inner cities.

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- Mayor's Commission on Literacy
- Office of Mental Health and Mental Retardation
- School District of Philadelphia

Colonial Northampton Intermediate Unit #20
Commonwealth of Pennsylvania
- Department of Education
  - Bureau of Special Education
  - Bureau of Vocational and Adult Education
- Department of Labor and Industry
- Department of Public Welfare

Delaware State Department of Education
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Geraldine R. Dodge Foundation
The William T. Grant Foundation
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South Carolina Department of Education
U.S. Department of Education
- Office of Educational Research & Improvement
- Office of Elementary & Secondary Education
- Office of Special Education Programs

U.S. Department of Health and Human Services
- Alcohol, Drug Abuse, and Mental Health Administration
- National Institute of Child Health and Human Development

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